

Interactive comment on “Evaluating primary productivity, ripple effect and resilience of fluvial ecosystems: a new approach to assessing environmental flow requirement” by Yui Shinozaki and Naoki Shirakawa

Anonymous Referee #3

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The authors present a evaluation of fluvial ecosystem via measures of productivity, ripple effect, and resilience in an effort to develop environmental flow requirement (EFR). The authors use three indices contribution of downstream ecosystems, trophic level and ecological recovery time in the estimation of the environmental flows. The authors argue that a conceptual EFR model based on plant biomass is adequate to measure productivity, ripple effect, and resilience in the system. Aquatic plants are broadly defined as either as vegetation biomass growing in the river or free floating algae.

The paper reads well, though could use some light editing. My biggest concern with the

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paper is the ability to validate the results presented in the paper. the authors introduce two indices but present no tables presenting the data used or any other explanation. The only tables are for the trophic index (with table 3) providing some numbers used.

Also, the paper ignores the impact of other stressors to the systems (nutrients, chemicals are some examples).

For this paper to be considered for publication, I would recommend that the authors present a few more reliable case studies to show the validity of the indices introduced and the overall model.

Please see these other papers in the area

Yarnell, Sarah M., et al. "Functional flows in modified riverscapes: Hydrographs, habitats and opportunities." *BioScience* 65.10 (2015): 963-972.

Rheinheimer, D. E., S. M. Yarnell, and J. H. Viers. "Hydropower costs of environmental flows and climate warming in California's Upper Yuba River watershed." *River Research and Applications* 29.10 (2013): 1291-1305.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2016-626, 2016.

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